

**Minutes of meeting:** Radiation Safety Committee, sub-committee

**Date:** Friday, February 26, 1999

**Present:** D. Beavis, W. Mackay, R. Marascia, S. Musolino, A. Stevens

**Subjs:** Review of Magnet Access Shielding at 8 and 12 o'clock Areas

The primary purpose of this meeting was a review of shield planned to block magnet access ports at 8 o'clock and 12 o'clock.

The estimates for the shield required for these areas were made some time ago by A. Stevens using the CASIM program. The results were documented in memoranda which are attached as Attachment 1 (12 o'clock) and Attachment 2 (8 o'clock).

The ports at 12 o'clock require 12 ft. of light concrete to have the DBA fault fall below the 160 mrem criteria (fault of full  $4 \times$  design beam and  $\times 2$  neutron QF). Based on previous estimates of a worse port at 2 o'clock (the 2 o'clock stub, which has since been filled) a 1 ft. overlap of the opening in the transverse direction is required. At the time of this meeting, R. Marascia has not identified blocks which achieve the required overlap and are 12 ft. deep. A group of 3 blocks is identified which has 10 ft. depth over most of the area, but only 8 ft. depth over a small portion. The subcommittee approves the identified shield for the June commissioning run, but the full 12 ft. must be identified prior to the start of the physics run in November. (The nominal intensity for the June run will not exceed 3 bunches of Au at  $5 \times 10^8$  ions per bunch at full energy. This scales to less than 3.7 mrem - no  $\times 2$  QF - after 8 ft. of light concrete). Marascia stated that he was in the process of seeking more shield blocks from LBL and would also investigate the possibility of obtaining blocks from the AGS A3 beam line. (Following this meeting Marascia identified more shield blocks to provide a minimum of 12 ft. depth with 1 ft. overlap.)

The port at 8 o'clock is much better from a radiation point of view. No line of sight exists from the port exit to the beam line, and the DBA fault here is only  $\frac{1}{2}$  of the full beam. Here, 4 ft. of light concrete is estimated to reduce the dose well below 160 mrem. Marascia has identified a 4 ft. thick block of heavy concrete with 4 inch transverse overlap which Stevens believes is quite sufficient. However, a small transverse mis-alignment, as the blocks are removed and replaced could cause a problem. To prevent this, Marascia has painted lines marking the correct alignment. The sub-committee approved the shield blocks planned.

Prior to this meeting two members of the sub-committee, Mackay and Stevens, inspected the physical configuration on the south side shield region at 8 o'clock. This inspection was made to determine whether CK-PHENIX-14, which referred to posting a "no climbing" sign, has become moot as described in the RSC minutes of 02/19/99. Although the fence in this area is not yet in place, it must be prior to commissioning. The labyrinth will be behind the fence as indicated in the attached drawing (Attachment 3). What is not shown in the drawing is that a PASS gate exists

immediately inside the last labyrinth leg. Although CK-PHENIX-14 is indeed moot, and therefore rescinded, the gate on the left side of the attached figure must be different from most gates, which have HP locks, since a person must be able to get out in case of emergency. This substitutes a new check list item, as indicated below, for the one rescinded.

The following check list items should be a part of the start-up procedure for the commissioning run:

1. The magnet access ports at 8 o'clock should be closed with 4 ft. thick concrete shielding blocks. The transverse location of these blocks should be indicated by paint marks. **CK-8oclock-1.** 103

(Note: many other check list items with "PHENIX" as part of the designation refer also to the 8 o'clock region).

2. The magnet access ports at 12 o'clock should be closed with concrete blocks that are not less than 12 ft. in length. **CK-12oclock-7.** 104 (Amended following meeting – see text).

The following check list item should be closed prior to the start of the physics program, now scheduled for November 1, 1999.

3. The gate immediately outside the labyrinth on the south side of 8 o'clock must either be crashable or have a local key box for emergency egress. **CK-8oclock-2.** 105 It would be preferable to have this item completed prior to commissioning, but if it not, the gate must be unlocked. (Note that the gate on the right side of Attachment 3 falls into the same category as all other fencing – it must be equipped with an HP lock prior to the commissioning run.)

#### Attachments

##### Distribution:

- D. Beavis (w Attachment 3 only)
- A. Etkin (w Attachment 3 only)
- W. Mackay (w Attachment 3 only)
- R. Marascia (w Attachment 3 only)
- S. Musolino (w Attachment 3 only)
- A. Stevens (w Attachment 3 only)

cc: RSC file (w all Attachments)  
RSC (w Attachment 3 only)